WHAT IS CLAIMED IS:

1. Apparatus for sensing characteristics of regions at and under a seafloor, comprising:

an array comprising a plurality of transducers that each can generate a sonic beam, and at least one sonic detector that can detect sound;

circuitry connected to said plurality of transducers to energize them one at a time with an electrical pulse to generate a narrow sonic beam, said circuitry connected to said at least one detector to receive signals representing a sonic echo of each sonic beam;

said plurality of transducers being arranged in at least one row and each of said pulses has a carrier frequency of at least 200 kHz to generate a narrow sonic beam.

2. The apparatus described in claim 1 including:

a vehicle that is constructed to tow said row of transducers along a path that lies an average of no more than six meters above the seafloor, with said transducers facing downward at the seafloor and with said row extending in a direction that is primarily perpendicular to said path.

3. The apparatus described in claim 1 wherein:

said at least one sonic detector include at least three detectors which are interspersed with said transducers.

4. A system for sensing regions at and under a seafloor, comprising:

an array that includes a row of sonic transducers and at least one sonic detector;

a vehicle that supports said row at a height above the seafloor of no more than six meters and that can move said row along a path above said seafloor;

circuitry connected to said transducers to energize them one at a time to produce pulsed sonic beams.

5. The system described in claim 4 wherein:

said at least one sonic detector includes a row of sonic detectors extending parallel to said row of sonic transducers, with each sonic detector lying adjacent to a selected sonic transducer.

6. A system for sensing regions at and under a seafloor, comprising:

an array that includes a row of sonic transducers and at least one sonic detector;

a vehicle that can move said row along a path above said seafloor;

circuitry connected to said transducers to energize them to produce pulsed sonic beams, said circuitry connected to said at least one sonic detector and constructed to generate a display with trace lines each representing echo parts resulting from each sonic beam, for sonic beams produced by each of a plurality of said transducers of said row, with positions of said trace lines along a first axis of the display representing the amplitude of echo parts, and with positions along a second axis of said display representing the delay time between generation of the corresponding pulse and the time of detection of the echo.

7. The system described in claim 6 wherein:

said at least one sonic detector includes a plurality of sonic detectors.

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8. Apparatus for sensing characteristics of regions at and under a seafloor, comprising:

an array comprising a plurality of transducers that each can generate a sonic beam, and a plurality of sonic detectors that can detect sound;

circuitry connected to said plurality of transducers to energize them one at a time with an electrical pulse to generate a narrow sonic beam, said circuitry connected to said detectors to receive signals representing a sonic echo of each sonic beam;

said plurality of transducers being arranged in at least one row;

said sonic detectors include at least three detectors and said detectors are interspersed with said transducers, with each transducer associated with an adjacent sonic detector.

9. The apparatus described in claim 8 wherein:

said transducers are spaced apart by no more than 25 cm, and said at least three detectors include a detector lying adjacent to each transducer.

10. The apparatus described in claim 8 wherein said transducers and detectors lie in the water and above a seabed, wherein:

said transducers and detectors are at substantially the same distance from said seabed.

11. A method for sensing regions under a seafloor, comprising:

positioning a movable array of sonic beam generating transducers, that includes a plurality of transducers at a height above the seafloor with the transducers facing primarily at the seafloor, and positioning at least one sonic detector so it moves with said array;

energizing one of a plurality of transducers at a time, to produce a sonic beam in the form of a pulse, detecting an echo of each sonic beam where each echo represents reflections of the beam at and below the seafloor, and generating electrical signals representing parts of the echo of the corresponding beam.

12. The method described in claim 11 wherein:

said step of energizing one of a plurality of transducers and energizing each of the other of said plurality of transducers, to produce a short pulse, includes generating a carrier signal of a frequency of at least 0.2 MHz and modulating said carrier frequency by a lower frequency to produce an electrical pulse having a duration on the order of magnitude of 10 microseconds, and with an amplitude that produces a peak sonic beam output of at least one watt per square centimeter to create a sonic beam in the seafloor.

13. The method described in claim 11 including:

moving said array at a height above the seafloor of no more than 6 meters.

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